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Nursing Students' Knowledge and Attitudes towards HIV/AIDS Patients

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Abstract

This study investigated nursing student *attitudes* and *knowledge* about HIV/AIDS at different levels of study in nursing and the association between *attitudes* and *knowledge*. Participant *attitudes* were measured using the *HIV Impact Questionnaire: Student Form*. *Knowledge* was measured with questions adapted from Ferguson, Cox, Irving, Leiter, & Farnsworth's (1995) measure. A convenience sample of 146 baccalaureate students from a large Midwestern college of Nursing completed a self-administered questionnaire. Both *knowledge* ($F=7.31$, $p=.001$) and *attitudes* ($F=5.80$, $p=.004$) about HIV/AIDS significantly improved with year of study in nursing. There was a positive correlation between *attitudes* and *knowledge* ($r=.31$, $p<.01$). This supports previous research findings and suggests that nursing student attitudes can be significantly improved as a result of completing a nursing program.

Nursing Students' Knowledge and Attitudes towards HIV/AIDS Patients

Chapter 1: Introduction

According to the Center for Disease Control, there are 800,000 to 900,000 people living with HIV in the U.S. and 40,000 new infections each year (Divisions of HIV/AIDS Prevention, 2003). With 33% of the new infections occurring through heterosexual sex and 25% through injection drug use (Divisions of HIV/AIDS Prevention), HIV/AIDS is no longer a problem limited to the male homosexual population. Yet, attitudes towards persons living with AIDS still reveal prejudice based on mode of HIV transmission (Cole, 1996; Earl & Penney, 2003; Leasure, Hawkins, & Merrill, 1996; Peate, Suominen, Välimäki, Lohrmann, & Muinonen, 2002; West, Leasure, Allen, & LaGrow, 1996), as well as a disproportionate fear of occupational exposure to HIV (Bormann, Brent, & Mood, 1995; Byrne & Murphy, 1993; Cornelius, 1999; Hurley & McGriff, 1996; Jemmott, Jemmott, & Cruz-Collins, 1992; Lester & Beard, 1988). A high proportion of both nursing students and nurses still believe that they should not have to care for HIV/AIDS patients and that institutions should have the right to refuse these patients (Byrne & Murphy, 1993; Lester & Beard, 1988; Lohrmann et al, 2000; McCann, 1997; Peate et al., 2002; Wiley, Heath, & Acklin, 1988).

Research shows that nursing student attitudes positively correlate with willingness to care (Lohrmann et. al, 2000; Peate et al.). It is imperative that nursing programs enable students to develop attitudes amenable to providing culturally sensitive nursing care to persons living with AIDS. There is a discrepancy in the literature, however, about the nature of the correlation between knowledge and nursing students' attitudes. The purpose of this study was to determine the level of knowledge and attitudes about HIV/AIDS among baccalaureate nursing students and the relationship between the two over the course of a 4-year program.

Chapter 2: Review of Literature

The review of literature will address current knowledge regarding nursing students' level of knowledge and attitudes about HIV/AIDS, as well as nursing education and experience in HIV/AIDS. Concerning nursing students' knowledge and attitudes, the following factors will be discussed: degree of knowledge; general attitudes towards HIV and AIDS patients; attitudes concerning homosexuality; attitudes towards caring for HIV/AIDS patients; factors influencing willingness to care for HIV/AIDS patients; mode of HIV transmission and attached stigma; impact of perceived risk of HIV transmission to the health care provider; and the prevalence of HIV and AIDS in the community. Regarding general nursing education and experience in HIV and AIDS, the following topics will be addressed: source of knowledge about HIV and AIDS; use of universal precautions in the health care setting; impact of year of study in nursing on knowledge and attitudes; educational preparation in HIV and AIDS content; comfort and confidence with HIV/AIDS patient care; and impact of nursing experience in HIV and AIDS.

Knowledge and Attitudes about HIV/AIDS

Degree of Students' Knowledge about HIV/AIDS

Assessing the degree of nursing students' knowledge about HIV and AIDS is key to assessing how competent nursing students are regarding the subject and the extent to which nursing programs are educating the students in this matter. There is a discrepancy in the literature about the level of nursing students' knowledge and where the gaps in knowledge lie. Jemmott, Jemmott, and Cruz-Collins (1992) found that the majority of the nursing students knew the correct answers to most of the AIDS knowledge questions and that gaps in knowledge consisted of knowledge of HIV transmission through casual contact and exposure to saliva of infected persons, whereas Cole (1996) suggested that nursing students were very knowledgeable regarding HIV transmission.

Another study (Ferguson, Cox, Irving, Leiter, & Farnsworth, 1995) determined that student nurses' knowledge of immunology and virology was lacking; this study compared

medical students, nursing students, and general undergraduate students on their confidence about their HIV/AIDS knowledge. Approximately 81% of the students were under-confident, which the researchers attributed to the fact that the knowledge assessed relates to an anxiety-causing subject, which results in caution to avoid being over-confident in an area perceived as having potential for personal risk (Ferguson et al., 1995).

Similar to Ferguson et al., Snowden (1997) found that nursing students' overall knowledge scores were low. However, Lohrmann et al. (2000) found a high knowledge level, except for gaps concerning immunopathology and symptoms of disease. One of the latest studies reported that common misperceptions still exist about the means of HIV transmission; for example, students thought that HIV could be transmitted via contact with mosquitoes and through fishing hooks (Earl & Penney, 2003).

Although it is clear that gaps in knowledge remain, there is a discrepancy in the literature concerning the level of nursing students' knowledge and where the gaps in knowledge lie. The discrepancy could be attributed to a lack of a universal measure for assessing knowledge as well as to a difference in nursing curricula. The current study determined students' level of knowledge in comparison to previous studies using an existing measure with high reliability and validity.

Students' General Attitudes towards HIV/AIDS Patients

It is important that nursing programs assess their students' attitudes towards HIV/AIDS patients to determine if attitudes need to be modified so that patient care is not negatively affected by poor attitudes. The literature is inconclusive about nursing student attitudes towards HIV/AIDS patients. One research study concluded that many students have genuine compassion for HIV/AIDS patients (Hurley & McGriff, 1996). Snowden (1997) determined that the majority of attitude scores reflected an uncertain attitude towards HIV and AIDS. However, the researcher concluded that her research did not support the previous literature that reported that many nurses have negative attitudes towards HIV/AIDS patients. She attributed this

difference to the majority of studies in the field at the time being five to ten years old and to a trend in the general population towards more positive attitudes regarding HIV and AIDS.

Peate, Suominen, Välimäki, Lohrmann, and Muinonen (2002) and Stewart (1999) determined that nursing students had positive attitudes about caring for HIV/AIDS patients, especially in terms of carrying out general nursing tasks, whereas Earl and Penney (2003) concluded that student attitudes have not changed over the past decade. This last study found common themes of fear, anger, judgmental attitudes, both lack of sympathy and sympathy, lack of confidence, knowledge, and morality (Earl & Penney). An earlier qualitative study found similar themes of fear of exposure and transmission, hopelessness about situation, self-identification with the individual, empathy about HIV/AIDS patients, and spirituality and belief in an afterlife (Cornelius, 1999).

There is a discrepancy in the research about nursing student attitudes towards HIV/AIDS patients. Again, there is no universal measurement used to assess attitudes, nor is there often adequate validity and reliability of the instruments established. The current study measured nursing students' attitudes using an existing measure developed to attain high reliability and validity for the nursing student population. Although there is no consensus about nursing students' amount of knowledge and general attitudes about HIV/AIDS, a number of studies agree that knowledge is positively correlated with attitudes (Carney, Werth, & Martin, 1999; Cornelius, 1999; Lohrmann et al., 2000; West, Leasure, Allen, & LaGrow, 1996). This study seeks to replicate this correlation in order to ascertain whether the nursing program is indeed developing students' attitudes in addition to knowledge.

Attitudes towards Homosexuality

Since there is still a disproportionate number of homosexual HIV/AIDS patients, nursing students' attitudes concerning homosexuality need to be measured in order to identify a potential problem in attitudes which could carry over to patient care. The existing research seems to suggest a trend towards more positive attitudes with regard to homosexuality, but a

discrepancy still exists. Oermann and Gignac (1991) suggested that subjects who personally knew a homosexual had higher total knowledge scores on the AIDS Knowledge and Attitudes Assess Test than those who did not. Jemmott, Jemmott, and Cruz-Collins (1992) found that a higher level of AIDS knowledge was correlated with less negative attitudes towards homosexuals. Concerning the effect of year of study in the nursing program on homophobia, seniors did have a lower homophobia score than the freshman students; however, homophobia was still prevalent (Byrne & Murphy, 1993). This contrasts with a later study finding a low degree of homophobia (Cole, 1996).

Several studies found no difference among student attitudes for sexual orientation (Leasure, Hawkins, & Merrill, 1996; Stewart, 1999; West, Leasure, Allen, & LaGrow, 1996). West et al. (1996) suggest this change in attitude toward homosexuality compared to the earlier research is due to the humanistic portrayal of homosexuality in the media. A 2000 study reported that 88% would not mind caring for a homosexual and 81% would not feel uncomfortable caring for homosexuals with AIDS (Lohrmann et al.). Likewise, Peate et al. (2002) found that 78% of students surveyed would not feel uncomfortable dealing with bisexuals, 84% would not be uncomfortable dealing with homosexuals, and 88% of students believed the same respect and information should be offered to a homosexual partner as a heterosexual partner. Earl and Penney's study (2003), however, revealed major objections to homosexuality and promiscuity. This was a study conducted among rural students, however.

Research suggests that homophobia is negatively associated with positive attitudes towards HIV/AIDS patients (Lohrmann et al., 2000). Although the majority of the research seems to suggest a trend towards more positive attitudes with regard to homosexuality, a discrepancy still exists about such attitudes. More studies are needed to measure nursing students' attitudes toward homosexuality.

Attitudes towards Caring for HIV/AIDS Patients

The Code of Ethics for Nurses states that nurses are to practice "with compassion and respect for the inherent dignity, worth, and uniqueness of every individual, unrestricted by…the nature of health problems" (American Nurses Association). Yet, a high number of nursing students and nurses believe that both individuals and nurses should have the right to refuse the care of HIV/AIDS patients (Byrne & Murphy, 1993; Lester & Beard, 1988; Lohrmann et al, 2000; McCann, 1997; Peate et al., 2002; Wiley, Heath, & Acklin, 1988). An older study by Lester & Beard (1988) noted that although students agreed that AIDS patients were deserving of care, 49% of these students would rather not care for them; only 24.3% would provide mouth-to-mouth resuscitation if no protective devices were accessible; 17.5% would quit their job before caring for an AIDS patient; and if students had children at home, they believed that they should be exempt from caring for AIDS patients. Another study published in the same year (Wiley, Heath, & Acklin, 1988) identified similar statistics: 54% of the students surveyed agreed nurses should be allowed to refuse to care for AIDS patients; 36% would definitely or probably refuse to treat AIDS patients. In a study published five years later, Byrne & Murphy (1993) found that while most of the students indicated they would rarely or never refuse to care for an HIV/AIDS patient, 72% of the freshman and 74% of the seniors thought that nurses should have the right to refuse an assignment; an even larger percentage felt that student nurses should have the right to refuse to care for an HIV/AIDS patient.

In a study of three large teaching hospitals in Australia (McCann, 1997), nurses and doctors were refusing to carry out their duty of care according to guidelines due to perception of personal risk or disagreement with perceived lifestyles of HIV/AIDS patients. Lohrmann et al. (2000) found that while more than one third of the students believed they should have the right to refuse care, only 8% would refuse to provide such care, and 89% disagreed that health care institutions should have the right to refuse. Still, 46% believed that HIV/AIDS patient care should be on a voluntary basis only (Lohrmann). One of the latest studies (Peate et al., 2002) found

comparable statistics to the earlier numbers in that 40% felt they should be able to refuse care, and a staggering 94% thought institutions should have the right to refuse care.

The majority of the studies show that student nurses believe nurses should not be obliged to care for HIV/AIDS patients and that health care institutions as a whole can turn away these patients. Granot & Tabak (2002) found a correlation between amount of knowledge and ethical position regarding right to refuse treatment. The current study seeks to ascertain if nursing students still believe that individuals as well as institutions should be able to refuse care of HIV/AIDS patients.

Factors Influencing Willingness to Care for HIV/AIDS Patients

Since nursing students must be able to care indiscriminately for all patients, their willingness to care for HIV/AIDS patients must be assessed. There are a wide range of factors influencing nursing students' willingness to care for HIV/AIDS patients. Jemmott, Jemmott, and Cruz-Collins (1992) discovered that students with a stronger intention to work with AIDS patients had greater AIDS knowledge, associated less risk with providing care to AIDS patients, and expressed less negative attitudes towards homosexuals and intravenous drug users. While students were concerned about personal safety, the majority said it would not stop them from caring for HIV/AIDS patients (Hurley & McGriff, 1996). Similarly, ratings of infection control knowledge, comfort, and confidence about providing care were not found to be significant predictors for willingness to care; prejudice was the only significant predictor (Kemppainen, Dubbert, & McWilliams, 1996).

Cole (1996) reported that intent to provide physical and psychosocial care was high, but the higher the fear score, the lower the intent to provide care. Homophobia, fear of AIDS disease, and perceived risk of exposure were negatively correlated with intention to care. Furthermore, as students' knowledge increased, their intent to provide care changed to an affective response from that of a cognitive one (Cole). In a later study, however, knowledge was not found to be a significant determinant of intention (Valois, Turgeon, & Godin, 2001). Whereas

Stewart (1999) identified that willingness to care was not affected by medical diagnosis (leukemia vs. AIDS), Earl and Penney (2003) determined that it was. Whether this is a result of passage of time or a result of the lack of standardized questionnaires cannot be determined. Research agrees, however, that students with more positive attitudes towards persons living with HIV/AIDS are more willing to care for them (Lohrmann et al., 2000; Peate et al., 2002).

Nursing students must be able to care for patients irrespective of their diagnosis. Research, however, suggests that the effect of an AIDS diagnosis on nursing student attitudes towards caring for a dying patient are multidimensional—the students are more uncomfortable touching an AIDS patient to provide physical care and/or emotional comfort—and that there is an association between a patient's diagnosis and students' attitude score (Bormann, Brent, & Mood, 1995). Stewart (1999) corroborated this, finding that more responsibility and blame are attributed to an AIDS patient versus a leukemia patient. Interestingly enough, talking about death and the dying process with an AIDS patient is considered less negatively than talking to other dying patients (Bormann et al.). The current study measured the impact of an HIV or AIDS diagnosis on nursing students' attitudes toward caring for HIV/AIDS patients.

Mode of HIV Transmission and Attached Stigma

The way that a patient contracted HIV is a factor influencing nursing students' attitudes. Research shows that students demonstrate the least stigma towards contraction of AIDS via maternal transmission and via blood transfusion, and the most stigma towards contraction via sharing needles (Cole, 1996; Leasure, Hawkins, & Merrill, 1996; West, Leasure, Allen, & LaGrow, 1996). West et al. (1996) found that drug users are viewed with more stigma, with less respect, as less deserving of care, and as acquiring their infection as a result of their own actions. They suggest this is because the media portrayal of drug users is still stigmatized. Those who contracted AIDS via maternal or blood transfusion are viewed with less stigma, greater respect, and as more deserving of care; this is attributed to their being viewed as "innocent victims" (West et al., 1996). There is differing opinion among the later research.

Lohrmann et al. (2000) and West et al. (1998) found no differences in student attitudes towards patients based on modes of transmission of HIV infection. Corroborating the earlier research, Earl and Penney (2003) discovered little compassion in nursing student attitudes toward HIV/AIDS patients unless it was acquired as a result of a blood transfusion. Likewise, Peate et al. (2002) found that over half of the students surveyed were more sympathetic toward those individuals who had acquired the disease via blood transfusion as opposed to drug use. Most of the research agrees that mode of HIV acquisition affects student attitudes toward HIV/AIDS patients.

Perceived Risk of HIV Transmission to Health Care Provider and Impact on Care

Nursing students generally fear contracting HIV, but the impact of this fear on patient care is indeterminate. Lester & Beard (1988) found that students who scored high on the fear scale did not think students should be assigned to care for HIV seropositive patients, were less willing to care for HIV patients, were more homophobic, and, yet, had higher knowledge about AIDS. Jemmott, Jemmott, & Cruz-Collins (1992) corroborated that students who perceived that the occupational risk of HIV infection was relatively high were more homophobic and had negative attitudes towards drug users; however, students who had a high fear of HIV transmission scored lower in AIDS knowledge in contrast to Lester and Beard's study.

Research has found that a majority of nursing students surveyed had a significant other who was concerned about their career choice due to the AIDS epidemic, fearing contagion for the students and their loved ones (Byrne & Murphy, 1993; Cornelius, 1999; Hurley & McGriff, 1996). Lohrmann et al.'s study (2000) contradicted these findings since 67% of her respondents were not worried about relatives and friends after contact with HIV/AIDS patients and 52% were not fearful of having contact with HIV/AIDS patients. Concerning the effect of year of study in the nursing program, one study demonstrated that seniors did have lower fear of AIDS than the freshmen; however, both groups still scored high on the fear component (Byrne & Murphy, 1993). Research suggests that touching an AIDS patient is perceived more negatively, but

talking to the same patient as less negative. It has been suggested that this is because touching the patient is viewed as leaving the student more susceptible to catching the virus (Bormann, Brent, & Mood, 1995). There is a consensus in the literature that nursing students fear contracting HIV; however, there is a discrepancy about the impact of this fear on patient care. The current study measured students' fear of contracting HIV.

Prevalence of HIV/AIDS in Student's Geographic Area

One possible factor influencing nursing students' degree of knowledge and attitudes is the prevalence of HIV and AIDS in their community. Only one study compared nursing students from states with high and low prevalence of HIV and AIDS. Students from the low-prevalence area were found to have more accepting attitudes towards HIV/AIDS patients, whereas students from the high-prevalence state demonstrated higher knowledge.

West, Davis-LaGrow, Leasure, and Allen (1998) suggested that the higher knowledge of the nursing students from the high prevalence area could be explained by the mandatory education, increased rates of infection statewide, and heightened community awareness. This study measured nursing students' knowledge and attitudes in a high prevalence area. The number of reported persons living with HIV/AIDS in Franklin county is 224.3 per 100,000, making it the second highest prevalence county in Ohio, second only to Cuyahoga with 227.3 per 100,000 (Ohio Department of Health HIV/AIDS Surveillance Program, n.d.). The number of reported persons living with HIV/AIDS in Ohio is 121.5 per 100,000 (Ohio Department of Health HIV/AIDS Surveillance Program, n.d.).

Nursing education and experience

Source of Knowledge about HIV/AIDS

Nursing students' source of knowledge is a component of nursing education, and it changes over time. Only two studies were found that looked at the nursing students' source of knowledge about HIV/AIDS; however, the findings are interesting. In 1988, Lester & Beard

found that students' primary source of knowledge about HIV/AIDS was the media followed by nursing journals; all were interested in finding out more about AIDS. In 1996, West et al. found that students' primary source of knowledge was still the media; however, it was followed by personal experience, then undergraduate education, clinical experience, and finally work experience. In 2002, Petro-Nustas, Kulwicki, & Zumout determined that the primary source of knowledge was school followed by magazines, and other nurses. There is an interesting change over time of students' source of knowledge; however, more studies are needed to corroborate these findings to address discrepancy between individual studies. The current study indirectly addressed the educational component of HIV and AIDS source of knowledge.

Use of Universal Precautions in the Health Care Setting

Universal precautions are key to preventing HIV transmission to the health care worker. Unfortunately, the data are inconclusive as to the extent that students use and feel comfortable with universal precautions. Some literature show that students have confidence in universal precautions (Wiley, Edwards, Smillie, Heath, & Acklin, 1996) and are less anxious caring for HIV/AIDS patients once they implement universal precautions (Hurley & McGriff, 1996). Cornelius (1999) found that students used excessive precautions, whereas Snowden (1999) found that 17% did not know the term, 24% were unsure about universal precautions, and a mere 35% felt confident enough to implement precautions with fewer than 25% always following precautions. These findings were echoed by Earl and Penney (2003) who found that some students viewed universal precautions as beneficial, whereas others were not confident in carrying them out. The literature disagrees on the extent that students use and feel comfortable with universal precautions. The current study asked students to rate how often they use universal precautions.

Students' Year of Study in Nursing and Impact on Knowledge and Attitudes

One would hope that nursing students' attitudes would improve with increased knowledge about HIV/AIDS over the course of a nursing program; unfortunately, that has not

consistently been the case. Oermann & Gignac (1991) reported significant differences across year of study on knowledge but no differences in attitudes scores; attitudes towards HIV/AIDS patients were poor, including those of the faculty. Jemmott, Jemmott, and Cruz-Collins (1992) also found that knowledge increased with progression through the program. However, they found an ameliorative effect on intentions to avoid AIDS patient care and perception of occupational risk to HIV infection; seniors compared to the sophomores had lower intentions to avoid AIDS patient care and lower perceptions of occupational risk to HIV transmission (Jemmott et al.). Byrne and Murphy (1993) determined that although more seniors scored higher on AIDS knowledge than the freshmen, the majority of students were at a "medium level" of correct knowledge.

Research suggests there is no effect of year of study on attitudes (Snowden, 1997; Stewart, 1999; West, Davis-LaGrow, Leasure, & Allen, 1998). Stewart suggested that positive attitudes among nursing students were due to stable personalities rather than being influenced by cognition and developed by progression in training. Likewise, Snowden found in comparing nursing students to math students that nursing students had more positive attitudes towards HIV/AIDS. She suggested that nursing students go into nursing with different attitudes and judgmental stance than math students, for example. The research reveals a concerning finding that attitudes are not improved with knowledge. Thus, year of study in nursing was a key variable examined in the current study to assess whether seniors have more positive attitudes than students in other years of the nursing program.

Coverage of HIV/AIDS Content in Educational Preparation

Educational preparation in HIV and AIDS differs from school to school. Only one study examined nursing students' educational preparation related to HIV and AIDS. A national study found that 97% of the students surveyed had HIV/AIDS content included in their curriculum. HIV/AIDS content ranged from 0 to 18 hours of instruction with an average of 5 hours of instruction (Hurley & McGriff, 1996). Seventy percent said faculty assigned students HIV

patients although 58% had not had the opportunity to take care of one. Seventy-three percent felt their preparation regarding HIV/AIDS care was "good" to "excellent" (Hurley & McGriff, 1996). This study was conducted knowing the extent of educational preparation related to HIV and AIDS in the program from which the sample will be drawn and results were compared to the national study to determine if knowledge and attitudes were comparable or not.

Confidence/Comfort Dealing with HIV/AIDS Patients

The confidence and comfort of nursing students caring for HIV/AIDS patients is key to assessing the quality of a nursing program's coverage of HIV and AIDS, but more studies are needed to determine whether students feel prepared and confident in HIV/AIDS patient care. A quasi-experimental study (Williams, 1995) revealed a positive correlation between level of knowledge and degree of comfort caring for an HIV/AIDS patients. However, Scherer, Dickerson, and Grzankowski's (1996) study suggested that students feel they have not received enough instruction to be able to competently care for an AIDS patient. Since this study was conducted among sophomore students, it might be expected that the students would feel more prepared to care for AIDS patients at the end of their program. A qualitative study (Cornelius, 1999) also found that students felt ill-prepared to address the emotional and psychological components in caring for HIV patients. However, since the students had not yet been instructed in HIV/AIDS content and a small sample size was used, the degree of inference from the study is questionable (Cornelius, 1999). In contrast, a later study (Lohrmann et al., 2000) found that only 12% of the students did not feel prepared to meet the physical needs of HIV/AIDS patients and 19% felt ill-prepared to meet the psychological needs. This study was conducted among German nursing students in their last year of study (Lohrmann et al., 2000).

More studies are needed to determine whether students are indeed prepared and confident in dealing with HIV/AIDS patients. The current study measured how comfortable students are caring for HIV/AIDS patients.

Impact of Nursing Experience with HIV/AIDS Patients

There is discussion in the literature about how nursing experience with HIV/AIDS patients affects knowledge and attitudes. Lester & Beard (1988) found that 83.1% of the students surveyed had not provided care for AIDS patients. In the same year, Wiley, Heath, and Acklin (1988) determined that there was no significant difference between undergraduates, RN or BSN completion students, or graduate students in their concern about exposure to HIV in the workplace, suggesting that nursing experience does not reduce fear of transmission (possibly because of fewer inpatient opportunities to care for HIV/AIDS patients). Research in 1996 revealed that those students who had cared for HIV-seropositive patients generally expressed satisfaction with their experience (Wiley, Edwards, Smillie, Heath, & Acklin).

Most of the research suggests that personal experience is positively associated with attitudes (Byrne & Murphy, 1993; Lester & Beard, 1988; Peate et al., 2002; West, Davis-LaGrow, Leasure, & Allen, 1998). Cornelius (1999) contradicted these findings; however, it was a qualitative study with only 12 participants who had had no prior didactic teaching on HIV/AIDS before entering their clinical experiences. Lohrmann et al. (2000) found a positive association between knowledge and experience. One of the latest studies (Earl & Penney, 2003) revealed students had had very limited experience caring for HIV/AIDS patients and rarely had the chance to discuss their feelings about the disease.

The research suggests that students need more experience dealing with HIV/AIDS; those that have had experience have more positive attitudes than those who have not. This study determined how many students in the nursing program have cared for an HIV or AIDS patient, as well as the impact of experience in caring for such a patient on knowledge and attitudes.

Summary

Uncertainties in the research exist concerning: a) the knowledge level of nursing students about HIV/AIDS; b) gaps in knowledge; c) the nature of nursing students' attitudes towards HIV/AIDS patients and homosexuality; d) the impact of fear of HIV transmission on patient care; e) the use of universal precautions; and f) nursing students' degree of preparation and confidence in working with HIV/AIDS patients. The purpose of this study was to determine baccalaureate nursing students' knowledge and attitudes about HIV/AIDS at different levels in a nursing program and the relationship between knowledge and attitudes.

Chapter 3: Methods

Design

The design of the study was quantitative, nonexperimental, and cross-sectional.

Research Questions

Among baccalaureate nursing students in a 4-year program,

1. Does level of knowledge about HIV and AIDS increase with year of study?
2. Do attitudes about HIV and AIDS change with year of study?
3. What is the relationship between subjects' level of knowledge and their attitudes towards HIV and AIDS?

Hypotheses

Among baccalaureate nursing students in a 4-year program,

1. Knowledge about HIV and AIDS will increase with year of study in nursing.
2. Attitudes about HIV and AIDS will change positively with year of study.
3. There will be no relationship between subjects' level of knowledge and their attitudes towards HIV and AIDS.

Human/Animal Subject Concern

The study was approved by The Ohio State University Institutional Review Board. There was no direct benefit to study participants. A possible benefit to the participant included an enhanced understanding of personal views towards HIV/AIDS patients and how much knowledge he/she had about HIV/AIDS. Benefits to others may have included improved understanding of the level of knowledge and attitudes towards HIV/AIDS patients among baccalaureate nursing students and the relationship between the two.

Participants were asked to disclose information that they might have considered personal or sensitive or that could have been damaging to their reputation. However, participants were informed verbally and in writing that they could skip any questions they wished to without any adverse repercussions and that participation was entirely voluntary. Participants

were informed that their name would not be on the questionnaire and that coding schemes that could attach their name to a questionnaire would not be used. Participants could contact the researcher with any questions or concerns. Those who took the questionnaire to complete at home could contact the research assistant at the number or e-mail listed on the introductory form. If a participant had become unduly upset or distressed, he/she would have been referred to the Student Health Services where a nurse or physician would have been available to answer any questions or concerns about the student's risk for having contracted HIV or AIDS. This was not necessary.

Procedure

The questionnaire was reviewed and approved by the mentor. The knowledge component of the questionnaire was then assessed for content validity by two faculty members. The researcher distributed questionnaires in each of the core nursing classes at the end of Spring quarter 2004 at a time previously determined by the instructors. The questionnaire was 7 pages long and took approximately 30 minutes to complete. Students were asked to complete the questionnaire at home or at the end of class. An envelope was provided with the questionnaire in order to ensure confidentiality. Questionnaires were returned to the researcher either after class or to the researcher's mailbox located in the College of Nursing. A cover sheet described the purpose of the study, confidentiality, right to withdraw, benefits and risks to the participant, and informed consent. Return of the completed questionnaire to the researcher was considered implied consent so that participants could not have been identified and could therefore divulge attitudes without fear of judgment by the researchers. No names were collected on the questionnaires; therefore, once the questionnaire had been turned in, it could not be withdrawn since there was no way to distinguish one student's responses from another. The researcher returned a second time at the discretion of the instructor to collect any surveys not returned to the mailbox and to distribute additional surveys if students had misplaced their survey.

Inclusion criteria were: 1) male or female, 18 years or older; (2) English speaking; (3) able and willing to provide informed consent; (4) enrolled in core nursing classes; (5) with the exception of summer, had not taken quarter(s) off from school. Children were not enrolled since the study looked at college students age 18 and over. Since this study sought to determine the specific effect of a program on knowledge and attitudes, students who had taken time off from school were excluded in order to minimize extraneous variables affecting knowledge and attitudes developed elsewhere during the time taken off from school. Since there was no screening for the questionnaire, completed surveys that did not meet the inclusion criteria were discarded.

Study data was secured in locked files in the College of Nursing accessible only to the principal and co-investigator. Data was entered into a database with the use of a personal computer. The database was stored on backup disks instead of on the college network. No information that was used in publications or discussion about the study identified individual participants. No coding scheme was used that would have enabled individual names to be linked to questionnaire data. A poster summarizing the study was displayed in the College of Nursing lobby in Spring 2005 for those participants interested in the results of the study. Participants interested in the answers to the knowledge instrument were to request them from the research assistant at the conclusion of data collection.

Possible threats to internal validity include selection bias since it is possible that only those who have strong feelings about HIV/AIDS patients completed the survey. Also, on the attitudes component of the questionnaire, students may have selected the response that they felt was the desired response.

Measures

Demographics questionnaire

A 13-item demographics questionnaire was used to gather information about age, gender, race, marital status, children, religion, year of study in the nursing program, full-time or

part-time status, transfer status, how many people they knew with HIV/AIDS, how many patients they had taken care of, and how they would describe most of their interactions with people with HIV/AIDS. The correct box was checked or filled in with the appropriate number. The demographic information was used to describe the sample.

HIV-Impact Questionnaire: Student Form

The second revision of the HIV-Impact Questionnaire: Student Form (Wiley et al., 1996) was used to measure nursing students' attitudes and the use of precautions in HIV/AIDS patient care. Wiley et al. analyzed the 28-item instrument; items with low factor loadings were removed, resulting in a 22-item scale. The seven factors, their percent variance accounted for, and the Cronbach's coefficients were the following: satisfaction (22.8%, .80), HIV testing (11.2%, .72), knowledge/use of universal precautions (8.5%, .75), others worry (7.3%, .79), I worry (6.1%, .71), confidence in universal precautions (5.3%, .61), and refusal of assignment (4.5%, .63). For the 22-item scale, Cronbach's coefficient was .82. Content validity was assessed with the original form by one of the non-nursing authors by discussing the instrument with a group of nursing students; comments from the students were used to add and revise items (Wiley et al., 1996).

Students were instructed to mark one of four responses: strongly agree, agree, disagree, and strongly disagree. The responses of strongly agree and agree were combined into a total percent of agreement. Some responses were reverse scored in order for higher scores to indicate a more positive attitude towards HIV/AIDS patient care. There was no distinction made between HIV patients and AIDS patients; the term "HIV-seropositive patients" was used in the instrument (Wiley et. al., 1996).

Knowledge questionnaire

To assess HIV/AIDS knowledge, a measure developed by Ferguson, Cox, Irving, Leiter, and Farnsworth (1995) specifically for its reliability and validity and its ability to discriminate between different groups of health care professionals was used. The authors of the instrument

set significance for knowledge domain-total correlation at 0.2 or greater. The seven domains of knowledge measured and their domain-total correlations were the following: symptomatology (0.53), virology (0.52), immunology (0.41), epidemiology (0.26), treatments (0.53), personal risk (0.40), and nursing procedures for HIV/AIDS (0.50). All the domains were at a significant level. Each question provided four answers in a multiple-choice format to reduce the chance of guessing to 25%. In terms of validity, all groups had significantly different scores with the final year students scoring the highest, followed by third year, then student nurses and finally non-medical undergraduates (Ferguson et al, 1995). This study only looked at student nurses, however. The questionnaire was updated by the researcher and reviewed by a nurse with specialization in HIV and AIDS. Content validity was achieved by having two nursing faculty with knowledge in the area rate the knowledge questionnaire on content validity on a scale from 1 to 4 on appropriateness for a sample of baccalaureate nursing students. Nine questions from the original instrument were deleted accordingly, resulting in a 28-item instrument. Questions containing statistics were updated. Certain questions were reworded to reflect current terminology in the area. Correct answers were summed for a total knowledge score. Higher scores indicated a higher level of knowledge about HIV/AIDS.

Analysis

Analyses were performed using two one-way between groups ANOVAs at three levels. Year of study was the independent variable; knowledge and attitudes were the two dependent variables. Significance was set at .05. Analysis was also performed using Pearson's r to analyze correlation between knowledge and attitudes.

Chapter 4: Results

Demographic results

146 nursing students completed the survey: 41 sophomores, 62 juniors, and 43 seniors. Most of the sample was female (93.8%), white (89.7%), single (86.3%), and did not have any children (91.1%). The average age of the sample was 22.4 ± 3.8 years. The majority of the students identified their religion as Christian (85.6%) and as somewhat religious; 28.1% identified themselves as very religious. Eleven percent of students had taken a quarter or more off from school and 22.6% were transfer students. Most of the students (83.6%) did not personally know someone with HIV. Although 41.7% of the students had cared for three patients or more, 31.9% had not cared for an HIV patient and 26% had only cared for one to two HIV patients. Most students (47.9%) described their interaction with patients with HIV as professional, 24% as both professional and personal, and only 3.4% as personal only; 24.7% students reported having had no interaction with HIV patients (see Table 1).

Attitudes

All students (N=146) completed the attitudes survey. The mean score across sophomores, juniors, and seniors was 63.07 (SD ± 8.54, possible range 22-88); the mean score was 59.88 for the sophomores, 63.15 for the juniors, and 66.02 for the seniors. The minimum score achieved was 30 and the maximum score achieved was 85. Although the maximum scores achieved were similar across grade levels, the minimum score was 30 for the sophomores, 43 for the juniors, and 47 for the seniors (see Table 2). A one-way ANOVA indicated that attitudes significantly improved with year of study ($F=5.80$, $p=.004$) (see Table 3), supporting the first research hypothesis.

Knowledge

The knowledge survey was completed by 138 students. The mean score across sophomores, juniors, and seniors was 19.04 ± 3.41 out of a possible 28. The mean score was 17.62 for the sophomores, 18.95 for the juniors, and 20.43 for the seniors. The minimum score

achieved was 9 and the maximum score achieved was 26. Both minimum and maximum scores were similar for all years of study (see Table 2). A one-way ANOVA indicated that knowledge significantly improved with year of study ($F=7.31$, $p=.001$) (see Table 3), supporting the second research hypothesis.

Attitudes and Knowledge

There was a positive correlation between attitudes and knowledge ($r=.31$, $p<.01$). The null hypothesis that there would be no relationship between level of knowledge and attitudes toward HIV/AIDS was rejected.

Chapter 5: Discussion

The purpose of this study was to determine the level of knowledge and attitudes about HIV/AIDS among baccalaureate nursing students and the relationship between knowledge and attitudes.

Key Findings

In this sample of primarily white young female nursing students, knowledge of HIV/AIDS increased with each year of the nursing program. In addition, attitudes towards HIV/AIDS became increasingly positive with each year of the nursing program. There was a significant correlation between students' knowledge and positive attitudes towards HIV/AIDS.

Nursing Implications

This study supports previous research findings of a positive association between knowledge and attitudes (Carney, Werth, & Martin, 1999; Cornelius, 1999; Lorhmann et al., 2000; West, Leasure, Allen, & LaGrow, 1996). There are some investigators, however, who have found that year of study did not have any effect on attitudes (Snowden, 1997; Stewart, 1999; West, Davis-LaGrow, Leasure, & Allen, 1998). This study does not support Stewart's (1999) suggestion that positive attitudes are more indicative of stable personality factors than cognition. This study suggests instead that nursing student attitudes are flexible and can be significantly improved as a result of education in a nursing program.

Most of the students (83.6%) did not personally know someone with HIV and 48% described their interaction with patients with HIV as professional only. Therefore, it appears likely that attitudes developed in nursing school and in clinical experience are key to how student nurses and future nurses will interact with HIV patients. By the end of the academic year, 32% of students had not cared for a patient with HIV. Since attitudes are developed by experience, findings from this study suggest that student nurses should be provided with more opportunity to care for HIV positive patients.

Although attitudes significantly improved towards HIV/AIDS with year of study in nursing and the average for all years was relatively high, the minimum attitude score for students after one year of schooling was low. This demonstrates the continuing need for nursing education targeted at improving nursing student attitudes towards their patients, especially patients as vulnerable as HIV patients. Similarly, although the average on the knowledge survey was high, the minimum score across all years was poor. Since HIV/AIDS content was addressed in each year of study, the findings suggest that efforts should be directed at improving student knowledge about HIV/AIDS. The nursing program does not specifically provide training to improve attitudes toward HIV patients and, yet, the attitudes improved over the course of the program. This would suggest that attitudes are a result of either increased knowledge as demonstrated by a positive correlation between knowledge and attitudes or the result of clinical experience. This further implicates the need to ensure clinical experience for all nursing students.

Ad Hoc

Percents of agreement with statements from Wiley, Edwards, Smillie, Heath, and Acklin (1996) study were compared (Table 2). Percents of agreement improved or remained the same (± 4%) with the exception of 4 statements out of 22. This could suggest that nursing student attitudes towards HIV patients are improving in general. Since the program does not directly provide training to improve attitudes toward HIV patients, it could be the result of improved societal attitudes towards these patients and reduced stigma towards HIV or the result of a program that seeks to develop positive attitudes towards all patients. Three of the statements in which percents of agreement did not improve involved satisfaction with working with HIV-seropositive patients. The other involved the chance of becoming HIV-infected during nursing practice if always using universal precautions. In addition, although attitudes were better in comparison with the 1996 study, many of the student nurses still believed that patients should be tested upon admission and nurses should be tested annually for HIV. Findings from this

study indicate that the fear of being exposed to HIV and becoming HIV-infected and exposing family members and friends is still fairly high. Although there was an increase in the percentage who agreed that they are able to prevent exposures, 15% of students still disagreed. Only 6% would routinely refuse to be assigned to HIV seropositive patients given the option, yet the majority of students agreed that nurses should be permitted to refuse under select circumstances and almost a third would personally refuse to provide care to HIV-seropositive patients under certain circumstances. There is still much room for improvement in attitudes towards HIV patients.

Study Limitations

The sample size was relatively small and was limited in that it was a convenience sample and not randomly selected. A possible threat to internal validity is selection bias since it could be that only those who feel strongly about HIV/AIDS completed the survey. Social desirability is another possible threat to internal validity since it is possible that students may have selected the responses that they felt were the desired responses instead of selecting the response most appropriate to themselves.

Implications for Future Research

Although this study supported many previous studies and increased the research base for HIV/AIDS, the lack of a standardized survey to measure nurses and nursing students' knowledge and attitudes about HIV/AIDS prohibits researchers from making true comparisons across samples. Systematic surveys could produce data needed for evidence-based practice and revision of curricula across the nation. It is also essential that future research examines how knowledge and attitudes translate into direct patient care.

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Table 1

Demographic and Characteristics of Midwestern College of Nursing students surveyed

Students (n =146)

Characteristic	*n*	%
Sex		
Male	9	6.2
Female	127	93.8
Age (years) *	145	22.4(3.8)
Race		
Caucasian	131	89.7
Black	6	4.1
Hispanic	2	1.4
Asian	3	2.1
Other	4	2.7
Marital Status		
Married	19	13.0
Single	126	86.3
Widowed/Divorced	1	0.7
Children		
Yes	13	8.9
No	133	91.1
How Religious		
Not at all	11	7.5
Not very	24	16.4
Somewhat	70	47.9
Very	41	28.1
Religion		
Christian	125	85.6
Jewish	1	0.7
Other	13	8.9
None	7	4.8
Level of nursing courses		
Sophomore	41	28.1
Junior	62	42.5
Senior	43	29.5
Quarter off from school		
Yes	16	11.0
No	129	88.4

Transfer Student		
Yes	33	22.6
No	113	77.4
Number of People know with HIV		
0	122	83.6
1	17	11.6
2 or greater	7	4.8
Number of patients cared for with HIV		
0	46	31.9
1-2	38	26.0
3 or greater patients	60	41.7
Interaction with patients with HIV		
Personal	5	3.4
Professional	70	47.9
Both	35	24.0
None	36	24.7

Note. Column percents may not equal 100% and totals vary because of missing data.

*Mean ± SD

Table 2

Descriptives for Attitudes and Knowledge

Source	N	Minimum	Maximum	Mean	Std. Deviation	Std. Error
			Attitudes			
300-level	41	30	82	59.88	8.66	1.35
400-level	62	43	83	63.15	8.09	1.03
500-level	43	47	85	66.02	8.14	1.24
Total	146	30	85	63.08	8.54	.71
			Knowledge			
300-level	37	9	26	17.62	3.73	.61
400-level	59	12	25	18.95	3.22	.42
500-level	42	12	26	20.43	2.86	.44
Total	138	9	26	19.04	3.41	.29

Table 3

Analysis of Variance for Attitudes and Knowledge

	Sum of Squares	*df*	*F*	*X2*	*p*
			Attitudes		
Between groups	93.111	2	5.800	396.555	.004
Within groups	3777.061	143		68.371	
Total	10570.171	145			
			Knowledge		
Between groups	155.903	2	7.309	77.952	.001
Within groups	1439.836	135		10.665	
Total	1595.739	137			

Table 4

Comparison with Wiley, Edwards, Smillie, Heath & Acklin, 1996 Study of Percents of Agreement with Statements

Name of Factor	Percent Agree		Change
Statements in Factor	1996	2004	+ or -
SATISFACTION			
1. I find it a satisfying and rewarding experience to give direct nursing care to HIV-seropositive patients	80%	75%	-
12. Working with HIV-seropositive patients gives me opportunities to face many of the challenges that attracted me to nursing.	75%	59%	-
13. All HIV-seropositive patients deserve the same compassionate nursing care regardless of how they became HIV-infected.	95%	99%	+
21. If I were given the option, I would routinely refuse to be assigned to HIV-seropositive patients.	20%	6%	+
22. When I graduate, I will consider working on a unit that has a high Census of HIV-seropositive patients.	43%	36%	-
HIV TESTING			
8. All patients should be tested for HIV upon admission to the health care agency.	71%	45%	+
9. As soon as HIV test results are available, nurses who give direct care to a patient should be informed of that patient's HIV test results.	93%	94%	+
15. Student nurses should be tested annually for HIV infection.	47%	21%	+
16. If a student nurse tests positive for HIV, her/his faculty should be Informed that she/he is HIV-seropositive.	54%	36%	+
19. An HIV-seropositive nurse who is asymptomatic should be allowed to give all types of nursing care.	47%	67%	+
20. If a nurse is HIV-seropositive, her/his patients should be told their nurse's HIV status if the patient asks about it.	57%	36%	+
KNOWLEDGE/USE OF UNIVERSAL PRECAUTIONS			
4. I understand the guidelines for universal precautions.	100%	98%	-
5. I routinely follow universal precautions for all patients.	99%	97%	-
OTHERS WORRY			
6. My family and friends worry about me becoming HIV-infected during my nursing practice.	60%	21%	+
14. Because of the AIDS risk, my family and friends are worried about Me becoming a nurse.	37%	11%	+
I WORRY			
6. Because of my clinical practice, I worry about exposing my family And friends to HIV infection.	45%	34%	+
7. Because of my clinical practice, I worry about being exposed to HIV infection.	61%	40%	+
CONFIDENCE IN UNIVERSAL PRECAUTIONS			
On-the-job exposure to HIV infection can be prevented if nurses use Blood and body fluid precautions for all patients (called universal Precautions).	96%	96%	=
10. Even in busy situations, I am able to prevent my exposures through broken skin or mucous membranes, to all blood and other infectious body fluids.	77%	85%	+
11. If I always use universal precautions, there is virtually no chance of me becoming HIV-infected during my nursing practice.	64%	47%	-
REFUSAL OF ASSIGNMENT			
17. If I were given the option, I might, under some circumstances, refuse assignment to HIV-seropositive patients.	46%	27%	+
18. Agencies should permit nurses to refuse, under selected circumstances, assignment to HIV-seropositive patients.	68%	53%	+